Monitoring Wyoming's Future & Creating Accountability

Wyoming Vision 2020 Act

The Wyoming Legislature hereby authorizes the Wyoming Monitoring the Future Project, under the auspices of the Wyoming Vision 2020 Act, whose purpose is to encourage individual and collections actions whereby the State of Wyoming will lead the country in major indices of well-being, productivity, health and safety. The project, housed at the University of Wyoming Statistical Analysis Center, shall have the following charter:

1) *To monitor progress toward Vision 2020 using indices of health, productivity, public safety, and well-being (hereinafter referred to, Wyoming Futures Indicators), as established by a collaborative state agencies, citizens and advisors who are appointed by the Governor;*

2) *To undertake a series of studies and monitoring activities as outlined in the Comprehensive Blueprint on Substance Abuse;*

3) *To report on Wyoming Futures Indicators to the citizens of the state in such a way that individuals and groups might be able to act to further the goals of Vision 2020;*

4) *To analyze and suggest pathways for progress toward Vision 2020 and Wyoming Futures Indicators, based on the best available science;*

5) *To make recommendations annually to the Governor, Legislature, and Agencies about strategies that can be sustained, altered, or created to achieve the goals of Vision 2020 and the Wyoming Futures Indicators;*

6) *To collaborate with prestigious entities and individuals worldwide in the development and testing of strategies that might further Vision 2020; and*

7) *To enhance the capacity of Wyoming citizens and entities to create, test and further activities that move the State toward Vision 2020, as measured by the Wyoming Futures Indicators.*

The various state agencies shall adopt standardized conventions for geo-coding of information, to facilitate data analyses pursuant to this legislation. Agencies will issue annual combined state-standards of geo-mapping on or before December 31 of each year.

The various agencies shall report to Legislature each year how they have assisted in improving the Wyoming Futures Indicators and how they will do so in the next biennium, and agencies shall adopt rules for contractors to likewise promote Wyoming Futures Indicators.

The Governor, based on nominations proposed by the Wyoming Legislature, shall appoint Wyoming civil servants or citizens annually to serve as Wyoming Citizens in Residence at the Center for a period of one year, when they will conduct collaborative projects and studies that further Vision 2020.

The Governor, upon the advice of Cabinet, shall appoint one or more distinguished individuals from any state or country to serve as Visiting Advisors, whose knowledge, skill or expertise might significantly enhance the capacity of Wyoming to achieve Vision 2020.

The Monitoring the Future Project shall sunset on December 31, 2020.

Monitoring Metaphor

In the course of this study for House Bill 83, many would ask, "How did we get in the mess with substance abuse in Wyoming? How could the problem have gotten so big?"

A metaphor came to mind on a trip to a meeting in Jackson Hole. The mountains loomed suddenly, with rocky peril evident.

"What if you tried to fly into Jackson Hole on a moonless night?"

"You'd need good instruments to monitor your path."

"What if you didn't have instruments?"

"Then, you'd likely hit a mountain."

Figure 46: C130 that Crashed in 1996 Flying Out of Jackson Hole

The mountains of modern society are sometimes not easily visible, until we are upon them. The problems of drug abuse, school violence, youth depression, and other issues have crept up on all of us—because we lacked the instruments to alert us early.

Monitoring the mountains and hazards is not enough, however. Just saying, "We avoided hitting the Tetons," is only part of the story. We must have measures and indices of the journey progress? Did we arrive on time? Did we land where we wanted to? Did we have all the people on board we wanted to?

Measures of Wyoming's Future

The authors of this study strongly believe that Wyoming is well served over the long-term system by monitoring community-level indicators, based on a general consensus of scientists and experience from research.[265] Effective monitoring will help us avoid future injury to the common good, and effective monitoring will help us select strategies and practices that increase the common good. For state initiatives, community-level indicators can be seen as one ultimate outcome of the effort.

Tracking Harms and Hazards

In the case of substance abuse, hazards can be conceptualized as either specific dangerous outcomes or dangers that predict adverse outcomes. In the social science literature, the first is often called "harms." The second is often called

"risks." Public health or medicine tends to use the respective language of mortality and morbidity. Sometimes, harms and hazards tend to cluster. For example, the use of methamphetamine obviously harms the user, and can be hazard (risk) factor for any minor child of the user. When harm and hazard decline over time, the people of Wyoming benefit.

Below is a partial list of harms that most scientists and citizens want to be as low as possible for the common good.

- Fatal or serious injury vehicle crashes, especially involving teen drivers at night involving single or multiple cars.
- Drug positives from samples of arrested people.
- Number of arrests for drug possession.
- Alcohol and tobacco consumption per capita measured by tax revenue
- Teen pregnancy or low-birth weight babies.
- Student self-reports of alcohol, tobacco, and other drug use.
- Juvenile arrests for alcohol, drug, and tobacco offenses.
- Drug test positives in pre-employment screenings.
- Alcohol or drug related events in emergency rooms.
- Perceived availability of drugs, alcohol, and tobacco by minors.
- Number of drug positives from urine or cord samples at birth or positives for fetal alcohol syndrome.
- Fetuses exposed to high levels of stress, injury, tobacco, alcohol, or other drugs.
- Assaults, domestic violence, and other violent crime by children, teens, or adults.
- Property crime such as vandalism, theft, robbery.
- Alcohol or tobacco related diseases (e.g. various cancers, lung disorders, liver disease).
- Behavioral and emotional disorders such as depression, ADHD, personality, bipolar or conduct disorders.
- Addiction and substance abuse disorders.
- Driving under the influence of alcohol or other drugs.
- Diseases as a result of inject able drugs (e.g., HIV and hepatitis).
- School failure and dropping out.
- Poor academic proficiency or readiness.
- Need for special education services.
- Need for foster placement as a result of child abuse or neglect.
- Accessibility to tobacco, alcohol, and drugs by minors.

- ↓ Early initiation of tobacco or alcohol use by children.
- ↓ Genetic or familial predisposition to substance abuse and related problems.
- ↓ Association with peers who engage problem behaviors.
- ↓ Community norms and actions that increase risk such as easy access by minors to alcohol, tobacco, and other drugs or alcohol service to intoxicated persons such as pregnant women.
- ↓ Per capita prescription of Schedule 2 drugs or combinations of drugs that can be abused at different ages.
- ↓ Per capita prescription of drugs used to treat co-morbid disorders or related to adverse outcomes in children (e.g., maternal depression).
- ↓ Prescription fraud cases.
- ↓ Quantity of drugs per capita seized.
- ↓ Per capita public assistance for families.
- ↓ Per capita Medicaid spending for mental health and selected medical conditions by age groups.
- ↓ Intercommunity mobility in rental housing.[266]
- ↓ Percentage of students completing high school.
- ↓ Percentage of youth with delinquency petitions.
- ↓ Percentage of youth with multiple delinquency petitions or charges.
- ↓ Number of students chronically absent or truant.

Tracking Protections and Successes

Let us extend the metaphor of our trip to Jackson Hole a bit. After landing, we excitedly go Jackson Lake. The children wearing flotation devices, the use of a well-designed boat, and appropriate behavior driving the boat, can predict our safety on the lake. Our success is not any of the above, however. Our success is having a joyous time and returning to the dock at the time we set.

In the case of substance abuse, there are number of indices of protection and success whose increase would benefit the common good in Wyoming:

- ↑ Children entering school ready to learn, with socio-emotional-cognitive competencies.
- ↑ Children with positive parenting.
- ↑ Marriages and relationships with high warmth and low conflict.
- ↑ Community reinforcement of positive behavior among children and teens, measured by items in paper, newsletters, and other media.
- ↑ Children supervised by adults after school and engaged in meaningful activities.

- ↑ Individuals of most ages screened for substance abuse and prompted for brief or motivational interventions for change.
- ↑ Conversations between parents and children about substance use behaviors.
- ↑ Column inches or airtime devoted to prevention strategies and successes in the community.
- ↑ Indices of a protective school and classroom environment.
- ↑ Frequency and publicity around randomized checks for driving under the influence of alcohol or drugs.
- ↑ Percentages of persons who need treatment or early intervention that are receiving effective, timely services.
- ↑ Effective child rearing observed at grocery stores or discount stores.
- ↑ Percentage of youth with little or no alcohol, tobacco, or drug use.
- ↑ Percentage of students with family members attending school events by grade level.
- ↑ Per capita church attendance by age groups.
- ↑ Number of community service projects reported in local media.
- ↑ Number of children and youth reporting meaningful roles in school, home, or community.
- ↑ Test calls or behavioral observations of community acts of kindness.
- ↑ The number of stores or clerks passing out social marketing materials.
- ↑ Sponsorships of community events by non-alcohol or tobacco sources.
- ↑ Number of intervention and prevention screenings implemented.
- ↑ Number of service projects by children and youth in community.
- ↑ Number of pages read per child or youth annually in a community in special contests.
- ↑ Number of books checked out per minor and adult from public library.
- ↑ Children's book sales per capita at selected sites.
- ↑ Youth report of friends who tell them not to use drugs, alcohol, or tobacco.
- ↑ Average daily attendance and on-time arrival (no tardies) to school by different grades.
- ↑ Number of sales tax permits.
- ↑ Per capita sales tax receipts.
- ↑ Number of club meetings and pro-social community events per week without alcohol.

Mechanisms for Monitoring Wyoming's Future

The University of Wyoming has recently developed several research centers that can collaborate with the state in this effort. The primary center for the purposes of this project is the Wyoming Statistical Analysis Center established by Governor Geringer in 2000. Other centers of research at UW that will aid in this research collaboration are the Survey Research Center, the Center for Rural Health Research and Education, and the Spatial Visual Data Collection Center. The University with its research muscle and technology is poised to aid the state government to undertake the following activities described below.

Secondary Student Surveys

Annual census sample of grades 6, 8, 10, and 12 of students enrolled in secondary school to measure substance abuse and other related multi-problems, which presently appears will be the Youth Risk Behavior Survey on even years and the Prevention Needs Assessment based on the Communities That Care Student Survey on odd numbered years. The YRBS is being preserved, because of long-standing trend issues. The Prevention Needs Assessment replaces the American Drug and Alcohol Survey used in 1997 and 1998. The authors of this report suggest that Substance Abuse Division review the additions of risk and protective factors made in the YRBS by the State of Oregon with the assistance of the Oregon Research Institute and consent of the Centers for Disease Control. This addition or change would improve comparability between years.

Child Strengths and Difficulties Surveys

The Department of Health in the United Kingdom has begun a monitoring project of that country's children. The rationale for this monitoring emerged from the exemplary research on children's development and resiliency at the University of London, Institute of Psychiatry, under the direction of Sir Michael Rutter. The UK Department of Health uses the Strengths and Difficulties Survey.

The Strengths and Difficulties Questionnaire (SDQ) is designed to detect behavioral, emotional, or relationship difficulties in children aged 4-16.[267] The questionnaire is based on 25 items divided into 5 scales with 5 items each: hyperactivity, emotional symptoms, conduct problems, peer problems, and pro-social behavior. A 'Total Deviance' score is derived from the sum of scores from the hyperactivity, emotional symptoms, conduct problems, and peer problems scales. The SDQ correlates highly with the Rutter questionnaire and the Child Behavior Checklist (widely used in the United States but is 4 times longer). Both are long-established behavioral screening questionnaires for children that have been proved valid and reliable in many contexts and correlate highly with one another.[268] However, the SDQ is shorter than these screening instruments and is the first to include a scale focusing on positive behavior: the Pro-social Behavior Scale.

Some samples of the Strengths and Difficulties Survey appear on the next page. One is for use by a teacher or parent of a 4-11 year old child. Another sample is a self-report by children age11-17. Other versions exist at http://www.sdqinfo.com/.

Figure 47: Strengths and Difficulties Parent or Teacher Survey for 4-10 Year Olds & Teen Self-Report Form

Strengths and Difficulties Questionnaire — P or T[4-10]

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's name ..... Male/Female

Date of birth .....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children, for example toys, treats, pencils	☐	☐	☐
Often loses temper	☐	☐	☐
Rather solitary, prefers to play alone	☐	☐	☐
Generally well behaved, usually does what adults request	☐	☐	☐
Many worries or often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, depressed or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often offers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets along better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Good attention span, sees work through to the end	☐	☐	☐

Signature ..... Date .....

Parent / Teacher / Other (Please specify:)

Thank you very much for your help

Strengths and Difficulties Questionnaire — S[11-17]

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain . Please give your answers on the basis of how things have been for you over the last six months.

Your name ..... Male/Female

Date of birth .....

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings	☐	☐	☐
I am restless, I cannot stay still for long	☐	☐	☐
I get a lot of headaches, stomach-aches or sickness	☐	☐	☐
I usually share with others, for example CD's, games, food	☐	☐	☐
I get very angry and often lose my temper	☐	☐	☐
I would rather be alone than with people of my age	☐	☐	☐
I usually do as I am told	☐	☐	☐
I worry a lot	☐	☐	☐
I am helpful if someone is hurt, upset or feeling ill	☐	☐	☐
I am constantly fidgeting or squirming	☐	☐	☐
I have one good friend or more	☐	☐	☐
I fight a lot. I can make other people do what I want	☐	☐	☐
I am often unhappy, depressed or tearful	☐	☐	☐
Other people my age generally like me	☐	☐	☐
I am easily distracted, I find it difficult to concentrate	☐	☐	☐
I am nervous in new situations. I easily lose confidence	☐	☐	☐
I am kind to younger children	☐	☐	☐
I am often accused of lying or cheating	☐	☐	☐
Other children or young people pick on me or bully me	☐	☐	☐
I often offer to help others (parents, teachers, children)	☐	☐	☐
I think before I do things	☐	☐	☐
I take things that are not mine from home, school or elsewhere	☐	☐	☐
I get along better with adults than with people my own age	☐	☐	☐
I have many fears, I am easily scared	☐	☐	☐
I finish the work I'm doing. My attention is good	☐	☐	☐

Your Signature .....

Today's Date .....

Thank you very much for your help

The authors recommend that Strengths and Difficulties Surveys be adopted for use by families and schools in Wyoming as both a monitoring device for public health issues and to help guide service decisions in Wyoming. The use of these instruments will be voluntary but highly encouraged.

Data from the Strengths and Difficulties Instruments (SDQ) can be used in the following ways:

SDQ for Public Health and Policy

⇒ Predict need for mental health, special education, and related services geographically in Wyoming.

⇒ Predict future prevalence of adult and adolescent behavioral disorders, inclusive of substance abuse and antisocial behavior.

⇒ Predict future work-force capacities.

⇒ Evaluate the impact of policies undertaken to improve the developmental outcomes of children in Wyoming.

SDQ Use for Classroom and Family Self-Help

⇒ The information about the combined mix of students in a classroom or school can help a teacher or site team choose prevention and other strategies that will ameliorate the factors related to multi-problem such as substance abuse, anxiety disorders, depression, attention and conduct concerns.

⇒ Information back to a parent or guardian can help them choose early interventions to improve the developmental outcomes of the child.

SDQ Use by Health, Mental Health and Service Professionals

The instruments can quickly help professionals determine what interventions a child might need, and their use at several time intervals can help professionals monitor the progress and success of various intervention strategies, which invite comparisons of results and efficacy. The data could also provide a developmental history for professionals, invaluable for examining the onset of various problems.

SDQ Implementation in Wyoming

It will be necessary for three departments in Wyoming to work collaborative with University of Wyoming Statistical Analysis Center to develop protocols for the use of the SDQ (Strengths and Difficulties Questionnaire). The three departments are: the Department of Health, the Department of Family Services, and the Department of Education. The implementation of the SDQ in Wyoming ought to meet the following objectives:

⇒ No linkage of any computer record with name of the child, family, and SDQ data except by written permission of the guardian or parent. Such data must have the high levels of security including of encryption so that files are not readable as standard ASCII data.

⇒ If data are generated by parent, storage of information of information by a user number known only to the parent or guardian, which assures anonymity of data.

⇒ If teachers generate data, no name or ID numbers are attached to any computer record without the written permission of the parent or guardian.

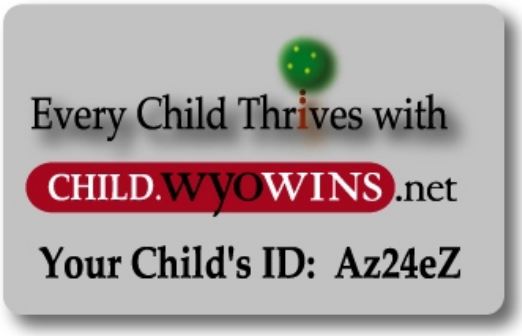
⇒ SDQ data generated from a child may only be done by written permission of the legal guardian or parent.

⇒ No child, parent, guardian, or teacher may be forced or coerced into completing the SDQ.

Data collection on the SDQ might work as follows to meet the public health and prevention agendas for the benefit of the future of Wyoming.

- At school enrollment, parents or guardians would be asked to complete an anonymous version of the SDQ each year, which could be done electronically (Palm OS, Internet, etc) or via related technologies (ANNOTO, for instance)[gg]
- At the enrollment time, parents or guardians would be asked if they optionally wish to code the special ID (known only to them) for attachment to their child's developmental record.[hh] Otherwise, the only identifier would be the grade or classroom for the child and the school. The use of the code would enable the parent to access the information later from any Internet connection to find out specific information for t heir child (again, there is no name attached to the computer record).

Figure 48: Example of Parent's Card for Child



- Teachers and schools would receive a general report and recommendations (based on current research) on how to address the collective need of groups of children with different score patterns on the SDQ.
- Reports would be generated for the various agencies and Legislature about the patterns of difficulties and strengths of Wyoming youth by county or zip code of the data. No data would

[gg] Annoto is a new technology that uses special paper with nearly invisible grid printed on it. By using a special pen, information marked on the paper is transmitted to a computer.

[hh] The special ID card number for the developmental record could be given out at several occasions: 1) the birth of a child, 2) the application for welfare benefits involving a child, or 3) as a question at annual enrollment. The cards would simply have a complex, unique alphanumeric code (e.g., X1cVf25d). On first use of the number, the computerized registration screen for use by the parent or guardian would ask for the person to establish a password, which would be encrypted and not visible to any other party. Once the password was established, no one would be able to access the records (which have NO name or other linking info). If the password were lost, the records could no longer be accessed from the Internet and no retrieval would be possible. The only way for a parent or guardian to have a record would be to manually re-enter the data from hard copy saved by the parent or guardian. The printouts generated via the Internet (with the encrypted code) would never show any ID on screen or when printed.

be released to the public by school level beyond the school itself.

- Reports generated for schools would not provide data by question by classroom to reduce changes or deducing a pattern for a child. The only time data on an item level could be generated for a child would be with the written consent of the parent or guardian, using a special one-time run.
- Teachers could use the Internet at any time to compute their own rating of their classroom of students (no identifier name could be attached) for the purposes of generating a prescription of possible strategies, based on their own ratings. Thus, if they had some children with elevated levels of aggression, the Internet version might generate a set of recommendations that a teacher could use to improve their circumstances of their own classroom. The computer program would not allow teachers to enter data for a single student, only for the whole classroom to focus on the overall classroom mix rather than individual interventions.
- Licensed professionals (doctors, nurses, counselors, psychologists) would be permitted to enter individual student data for a report, though no name or similar identifier would be allowed for storing the data on the database.

The implementation of the SDQ could be partly paid for through recent changes in Medicaid rules, which allow physicians to be paid for using screening tools during well-child checks.

The use of an Internet system for parents or guardians to access developmental records has an interesting capacity for surveys to be embedded or requested when a parent or guardian logs on. For example, for children with above normative scores on the SDQ, a set of optional questions might be triggered at the next log-on to ask if the child has received any kind of special services and what those services might have been.

Random Digit Phone Surveys

The National Household Survey is an example of a random phone digit survey, which provides useful information not easily available from other sources. While such random digit surveys tend to underestimate such things as drug use compared to other types of data collection, these type of phone surveys can provide information not available by any other means or help evaluate the impact of various prevention, intervention, or treatment strategies being implemented by the state, such as:

⇒ Percentage of adults who have attempted to use a cessation service promoted in the media.

⇒ Number of parents who have implemented some family based strategy

⇒ Number of families concerned about needing treatment for a relative.

⇒ The differences in responses from target communities or wait-list communities based on intervention strategies.

⇒ Availability of tobacco, alcohol, and other drugs by minors.

⇒ And more…

Other Phone Surveys

In order for there to be overall accountability of the efforts intended by HB 83, there will need to be surveys of various aspects of the interventions and prevention strategies. For example, we may wish to conduct:

⇒ Survey of restaurants on issues that might predict outcomes: 1) number of adolescents trying to get service, 2) number of intoxicated patrons demanding service, and 3) use of family- friendly interventions.[269]

⇒ Surveys of local advertising for tobacco and alcohol products in stores.

⇒ Surveys of grocery stores for self-help racks or advertising for products or services that reduce problem behaviors.[270]

⇒ Surveys of waiting rooms for the presence of signs asking for no smoking for the health of others.

⇒ And more…

Direct Observations

Surveys are not sufficient in many cases, can be inaccurate, or less efficient. The intent of HB 83 and this report is to create a measurement system that puts accountability for results strongly in the minds of Wyoming citizens and stakeholder entities. Thus, the authors of the report strongly endorse the use of some direct observation events in Wyoming to evaluate how different factors might be moderating or mediating various substance abuse related outcomes or trends. For example, some of the following direct observations might be undertaken based on prior science:

⇒ "Would have been" sales of alcohol to minors such as is being done with the Tobacco Reward and Reminder Campaign in Wyoming.

⇒ Service of alcohol to intoxicated individuals.

⇒ Measurement of displays promoting alcohol and tobacco in retail stores such as grocery and convenience stores.

⇒ Measurement of displays promoting **Wyoming Wins** interventions in public places.

⇒ Column inches devoted to various substance abuse issues in Wyoming newspapers.

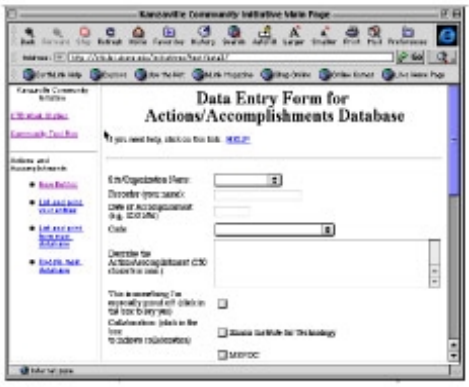
Community Toolbox

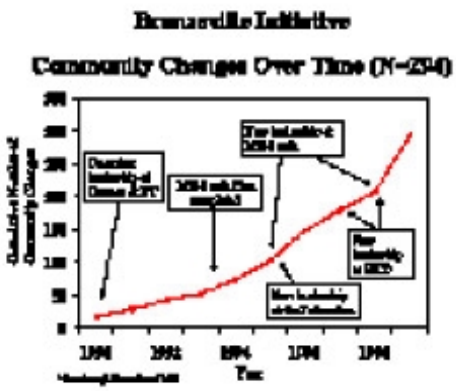
The authors recommend the use of the Community Toolbox system, which was pioneered at the University of Kansas for evaluating comprehensive community-change efforts to reduce substance abuse and other major community-level problems. This model has been tested on a number of different change projects. The model and toolbox are useful because they are well grounded in behavior-analytic theory and measurement, yet made responsive to issues that the community

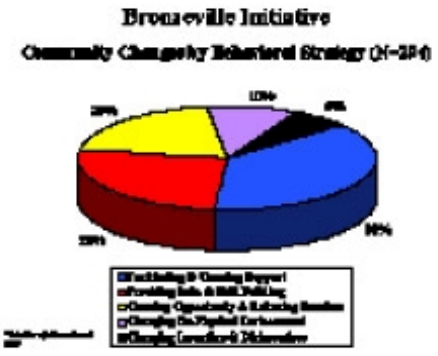
identifies as important. The fact that the model is moving toward an internet based system is especially useful, because the data-drive system provides feedback to the stakeholders and users about the effects they are having. This means that assessments become a true empowerment model. Extensive documentation and detail of the system can be found on http://ctb.lsi.ukans.edu/initiatives/initiatives.htm and http://ctb.lsi.ukans.edu/initiaves/test/.

Various federal agencies consider the Community Toolbox as a best practice, when a central precept is that the government cannot do it alone. The Community Toolbox has enabled communities to collaborate to increase economic development and other serious risk factors, which are difficult for a state government to affect at local level. Additionally, the Community Toolbox approach has shown major impact on substance abuse, teen pregnancy, and crime.[271] The Community Toolbox is both a process and a system of coalition building, costing about $125,000 to set up and a much smaller amount to maintain. The Community Toolbox would tie into other strategies being planned in this overall report. Data and computer screens from the Community Toolbox appear below.

Figure 49: Community Tool Box







Data Sharing

State agencies and major stakeholders need a way of studying and manipulating data to find out what is working and what is not in Wyoming. Furthermore, Wyoming needs a way of creating an ongoing "model" of its own experiences Generally speaking, most data are not stored or connected in ways that can be studied appropriately, and this may be worse in Wyoming.

Early in the work reviewing Wyoming, one of the authors examined citations in Medline, ERIC, and PscyInfo for Wyoming specific citations about any medical, educational or behavioral science issue. What was discovered is that almost all Wyoming citations are related to animal or biological research, with virtually a handful of studies of Wyoming people. This need not be the case. Some very small states, such as Kansas, have thousands of studies published on their people, and have made major contribution to scientific study.

One possibility of stimulating Wyoming-specific science would be the creation of a Wyoming Data Warehouse, much like the federal government has started to build for a variety of research data. How could such a thing as a Data Warehouse benefit Wyoming?

One need only look at the example of the data analysis undertaken of some 25,000 responses in Wyoming to the American Drug and Alcohol Survey for 1997 and 1998. Prior to the data analysis conducted by Drs. Kami London and Narina Nunez in collaboration with Dr. Dennis Embry, our state had never had a model of substance abuse prediction remotely specific to our young people.

Yes, Wyoming has published "flat file" reports of graphs of substance use indicators over time, but no multi-variant analyses had been undertaken. Indeed, few states have done so, despite the obvious advantage in effective policy, procedure, and strategy if a state had a powerful model of behavior *specific* to its own borders—instead of just a generic national model.

What was learned from that model is that the prediction of substance abuse (at least for the subset of the Wyoming youth taking the survey had very specific parameters:

⇒ Positive Predictor: Perceived availability of substances (e.g., alcohol, tobacco, and other drugs) by young people.

⇒ Positive Predictor: General anti-social behavior (aggression, fighting, stealing, etc.)

⇒ Negative Predictor: Friends who tell you not to use.

These finding are powerful, and will help greatly with the first wave of prevention efforts in the state. They are not sufficient. We need to find out other variables that link and further refine our prediction model.

This could happen with a Data Warehouse and promotion of the use of the data by University faculty and students as well as public agency officials. We

recommend that a data system start to be built that allow on-line (where appropriate) data that can be manipulated to test hypotheses about our own communities. For example, we might be able to analyze statistically such relationships as:

⇒ Alcohol and tobacco sales to minors by community as a variable for perceived availability.

⇒ The number of drive-up windows selling alcohol or the percentage of adults reporting using alcohol while in a car.

⇒ Signage in stores for tobacco and alcohol related to substance misuse and abuse in communities. (We have anecdotal evidence from community coalitions in Wyoming of wide variation of how stores observe the regulations and laws related to tobacco displays, such as open displays and access by minors of tobacco as seen from a store picture from Lander, Wyoming).

⇒ Time-lag correlations between low-birth weight babies per capita in counties and substance abuse prevalence rates among young people 10-15 years later or special education services 5-10 years later. [Both of these could be predicted from international research].

⇒ Prediction of juvenile crime in communities based on special education placements 5-7 years earlier. [Again, this is strongly suggested from international research, but we have no confirmation in the Wyoming context.]

⇒ Mobility patterns and substance abuse within communities, as measured by various indicators such as connections and disconnections of utility service. [This would help us answer the question: How is our problem related to new people moving into our communities with the boom and bust cycles of resource economics of our state?]

Figure 50: Lander Store Display (illegal by Wyoming Law)

These are just a few of the questions that come to mind. There is virtually no way to answer them quickly, because we have no depository of data.

The revolution of the Internet, On-Line Applications Programs (OLAP), server technology, and graphic routines now

make it far easier to develop a capacity for students, academics, policy makers, and even interested citizens or international researchers to have a query-based model for examining relationships between processes and outcomes in Wyoming.

It is therefore strongly recommended that all state agencies develop a plan with the University of Wyoming Statistical Analysis Center for a Wyoming Data Warehouse, available on-line. Certain data would not be on-line for public access, such as any information with identification by name of individual.

Clinical Outcomes Data System for Life Span Services

As a part of state standards for treatment services, the Department of Health is in the process of issuing policies and regulations, which will include the use of standardized clinical assessment and outcome tools. For example, the newly authorized Drug Courts will require the use of the Addiction Severity Index (ASI) be completed with individuals who enter and leave treatment, as well at certain follow intervals. Such information is critical for accountability and improvement of therapeutic services.

All of the named "best practices" use valid assessments of progress to guide the course of therapy, which simply makes common sense. As the process of this blueprint is rolled out, virtually every area of prevention, intervention, and clinical services must have standards of monitoring results.

Part of the role of the newly created Statistics Center at the University of Wyoming will be to develop feedback tools for use by individual clinicians or change agents, by agencies, by communities, and the state. For example, the regional teams proposed in the section on prevention and intervention will use these data in training and staff development of both public and private providers.

Accelerated Multi-Cohort Longitudinal Study

The generations in America are clearly different in their risk for problems such as substance abuse and other mental disorders. This helps explain the common comment of adults in their 50s and older who say, "Well, we did that, and we didn't get into all this trouble. It's really nothing to worry about."

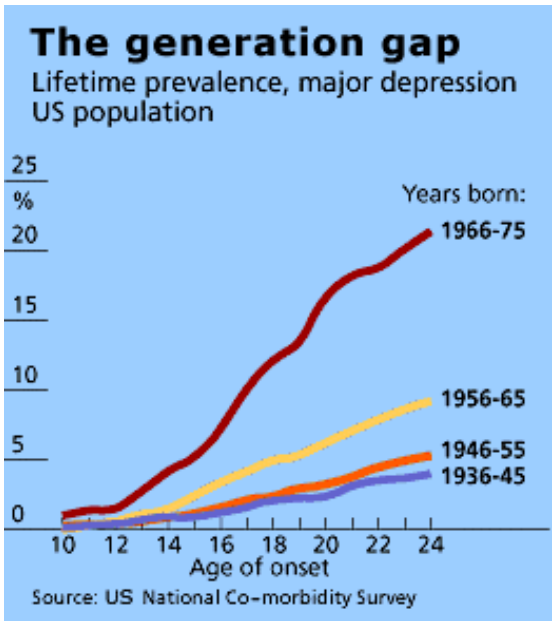
The problem is that people, culture, and the whole environment can change dramatically over time. The evidence for this can be seen from several sources, such as the various cohort studies over time of the incidence of diseases and disorders. A few simple illustrations will make the point superficially obvious.

Cohort Effects

In early 1950s, polio was a major epidemic, and so was tuberculosis. Neither are major health hazards today. The advent of antibiotics was hailed as a miracle in saving lives, and freely given out for things that they have no effect on such diseases as viral infections. In hospitals today, the bacteriological

diseases are starting to have an upper hand, because the bacteria evolved resistance to the drugs—something that evolutionary medicine experts were fiercely worried about. These are cohort or generational effects. A major cohort effect can be seen relative to major depression and its lifetime prevalence, shown below.

Figure 51: Depression and Generation Cohort Effects



What does the figure tell us from the major federally sponsored study on mental health disorder frequency (which corrects for over reporting, better diagnoses, etc)? First, people born between 1946 and 1955 (a significant percentage of our state policy makers) have only 5% lifetime probability of having had an episode of depression. Second, by comparison, people born between 1966-1975 (most of the younger adults in Wyoming), have nearly a 25% percent chance of having a major depression. This difference is huge, and worrisome for many reasons:

⇒ The children of people born between 1966-75 are many times more likely to have problems of substance abuse, antisocial behavior and school failure. Why? Because parents who are depressed are many times more like to have harsh, inconsistent or non-contingent (permissive) parenting, and such parenting style has very adverse consequences for effective child-rearing. For example, maternal depression when a child is the primary grades predicts conduct disorders (the worst kind of behavior problems such as involvement with the law, serious substance abuse) in those adolescents in longitudinal studies.[272] Depressed parents are unlikely to effectively supervise or monitor adolescent behavior, too.

⇒ The depressive episodes are correlated with higher health risk for many illnesses and reduced workforce capacity, which could adversely affect the state economy and welfare.

⇒ Relatively large numbers of adults are teachers from the 56-65 and 66-75 cohorts, and depression among teachers is not conducive to positive development among children their care. The symptoms of depression interfere precisely with neural circuitry necessary to engage in the behaviors described by experts as necessary for effective teaching. Teachers have a higher risk of depression than the general population,[273] because of the social conditions that can create depression are rampant in schools (e.g., feeling like you are helpless to change things because they are in the

control of others, feeling attacked, stressed, or burned out). And these trends have not escaped Wyoming. One larger school district spends more money on antidepressant medications than any other prescription.[274]

⇒ Women who are depressed and men who are aggressive or depressed choose each other as mates, potentially increasing the chances that genetics of substance abuse and multi-problem behavior increase.[275] This is called non-random mate selection.

There are other examples of cohort effects in the last few years that merit attention. Consider in the 1980s,for example, Eron and Heussman published their landmark longitudinal study on tracing the effects of TV viewing on antisocial behavior. The scientists reported that criminal behavior at age 30 could be predicted in part from the amount of TV watched as an 8-year old, 22 years earlier. What is important to note is that TV programs in question would have happened in the late 1950s, a far cry from the content of programs in 1990s. TV viewing would have had no impact persons born in the 1940s and earlier. It is quite possible that TV is a larger effect on problem behavior for children born after 1990, because of the content of the media and large numbers of children having TVs in the bedrooms—away from any human interaction that would buffer or protect against drugs. More recently, young people have been exposed to computer or video games. The type of games is unique in human history, and has some relationship with expressed aggression—based on current knowledge—although the effect may be modest.[276]

Cohort Study in Wyoming

The rise in serious substance abuse in Wyoming and related multi-problems may well be dramatically related to cohort effects, and those cohort predictors may be getting worse. If this is so, it means that we will have to find more powerful prevention, intervention, and treatment protocols to dramatically manage the adverse effects of multi-problems. Wyoming is an ideal state to conduct what is called an accelerated longitudinal cohort study because of its smaller size of people and relative homogeneity of population.

With the support of the State and other resources, the University of Wyoming, in collaboration with a number of national experts,[ii] national entities such as the National Institute on Drug Abuse, would undertake a bio-social study of Wyoming people, using a randomly selected cross section of the population, consisting of the following age cohorts: newborn, 5 to 21 (as controls for the clinic subjects), 21-25, 26-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85 and older. Our goal would be to follow 150 to 200 males and 150 to 200 females in each age cohort, for a total of approximately 3,100 Wyomingites. These individuals will also be given some of the same assessments given to clinical patients to allow the comparison of bio-social factors in a clinic sample versus a

[ii] Examples include: Dr. David Comings, City of Hope Medical Center; Dr. Tony Biglan, Oregon Research Institute; Dr. Patti Brennan, San Diego, CA.

population sample, for certain disorders. Assessments could include:

FOR ADULTS (18 and older)

⇒ A demographics questionnaire. The instrument will include family history.

⇒ CDIS-IV Computerized Diagnostic Interview Schedule-IV. This interview tests for the DSM-IV criteria based diagnoses.

⇒ Axis II Personality Inventory. The inventory is a self administered Computerized Personality Disorder Interview.

⇒ Addiction Severity Index. The ASI is a semi-structured, clinician-administered interview that collects data from substance abusers in seven problem areas, Computerized Personality Disorder Interview.

⇒ Cloninger Temperament and Character Inventory (TCI). Cloninger and coworkers have developed a seven - factor model of temperament and character. The seven factors are novelty seeking, harm avoidance, reward dependence, persistence, self-directness, cooperativeness, and self-transcendence.

⇒ EO Personality Inventory. This personality test has been used for many years.

⇒ Brown Adult ADHD Score. The instrument was developed an attention-activation disorder scale (BAADS) for the assessment of symptoms of attention deficit disorder in adults. It is a self-administered test with sub-scales specifically relating to attention, memory, impulsivity, and inactivity.

⇒ Buss-Durkee Hostility Scale. This is widely used to assess various aspects of aggression and hostility.

⇒ Moos Family Environment Scale. This measures family environment and cohesion.

⇒ Barratt Impulsiveness Scale or the GO-NO GO Task. Measures of impulsivity are important predictors.

⇒ State-Trait Anger Expression Inventory. Measures chronic state of hostility and expressed anger.

⇒ Assessment of Factors of Aggressiveness. Measures context of aggression.

⇒ Medical health questionnaire. As questionnaire for general medical disorders including, diabetes, osteoarthritis, cancer, chronic fatigue, fibromyalagia, migraine headache, and others.

⇒ Intervention and Treatment History. This would document the types of intervention and treatment individuals might have received.

⇒ Inventory of Social and Community Assets. The structure of this tool is to be decided.

CHILDREN (6 TO 17 years of age)

⇒ NIMH Diagnostic Interview Schedule for Children Version IV (DISC-IV). This is a structured interview for

DMS-IV diagnoses in children and adolescents.

⇒ Child Strengths and Difficulties Questionnaire. Self-report (for 11 and older), parent report, and teacher report.

⇒ Social Communication Questionnaire (SCQ). Autism Screening Questionnaire (40 items)

⇒ Other Assessments. Temperament, frontal lobe, reading problems, substance use and other assessments will be required.

⇒ Intervention and Treatment History. This would document the types of intervention and treatment individuals might have received.

⇒ Inventory of Social and Community Assets. The structure of this tool is to be decided.

CHILDREN (0 to 5 years of age)

⇒ These assessments will have to be reviewed with a panel of appropriate experts.

⇒ Intervention and Treatment History. This would document the types of intervention and treatment individuals might have received.

ALL AGES

⇒ Buccal Smear. A painless swab of the inner cheek, which will allow analysis of DNA and genes.

⇒ Saliva Sample. For chemical tests, such as hormone, lead, and manganese levels can be done on a sample of saliva.

Ideally, the multiple cohorts would be followed initially and then five years later, using various outcome measures including archival data.

Clinic Comparisons

The Cohort Study needs comparisons to special populations such as clinic referrals and criminal populations, so that Wyoming would have a complete profile for the development of norms and possible plans for therapeutic interventions.

Clinical samples**.** An important part of outcome of HB 83 is the development of state funded services where children, adolescents, and adults with disruptive behavioral disorders (ADHD, conduct disorder, oppositional defiant disorder (ODD), substance use disorder, domestic violence, other violence) are referred for evaluation and where appropriate psychological or medical treatment might be prescribed or managed. For the purposes of forming and developing more effective treatment protocols, it will be important to use the same evaluation protocols with a clinic sample as the population sample. We anticipate eventually obtaining samples on approximately 500 people in each of four age groups: 4 to 8, 9 to 12, 12 to 21, and greater than 21 years of age, for a total of approximately 2,000 Wyomingites. This type of sample plus information about the nature of treatment will be invaluable in developing and refining state standards of care, which will assure that Wyoming has one standard of high-quality service. For

example, it is rather clear that there are interactions between individual characteristics (genes, history, and social factors) and the positive or negative effects of medications. Adverse reactions to treatment can result in homicide, assaults, or suicide. The study will help Wyoming elevate the standard of care.

Adult Offenders**.** Since a major purpose of this project is to identify the psychological, environmental, and biological factors contributing to adult antisocial behavior inclusive of substance abuse, it will also require the inclusion of adults with adjudicated histories. An ideal source of adult offenders would be those already in prison. If this is deemed too difficult, individuals released from prison after serving their sentence could be used instead. We anticipate obtaining assessments and samples on 200 to 500 of such individuals. Again, these data would be of considerable help in designing effective treatment standards for our criminal justice population. The study of the criminal justice population could also go a long way towards a better understanding of how to effectively treat offenders, reducing the chances that they might commit major felonies such as murder shortly after release, as happened in August, 2001 after a release from the Men's Prison in Rawlins.

Expected Outcomes

The Accelerated Mutli-Cohort Study in Wyoming is expected to have the following outcomes, which will benefit the state's public health and safety:

⇒ Better understanding of risk and protective factors across generations.

⇒ Types of treatments that may work more effectively with certain age groups.

⇒ Avoidance of violent or harmful side effects as a result of medication or treatment protocols.

⇒ Better understanding of prevention, intervention, and control strategies.

⇒ Objective criteria for setting state standards for the provision of services.

⇒ International recognition for some of the most advanced science in the world for public health and safety issues.

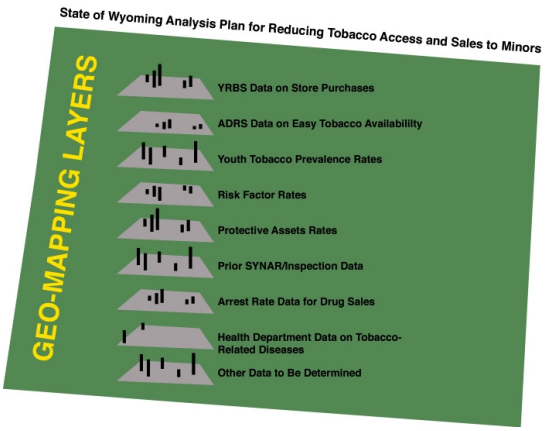
Special Considerations for Monitoring Wyoming Futures

There are some special considerations that need to be voiced for the development of a plan to monitor Wyoming's future. These are lessons learned from other jurisdictions. The lessons and ideas are discussed here.

Geo-Coding of Data

Whenever possible, consideration needs to be made for coding information to be geo-mapped.

Figure 52 : WY Analysis Plan for Reducing Tobacco Access and Sales to Minors

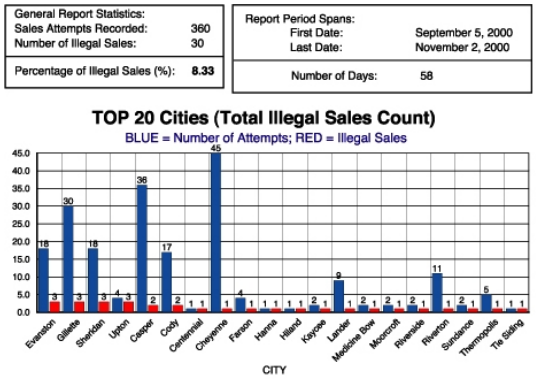


One expert in the field makes this recommendation:[277] "Because definitions of community areas typically have some geographic boundaries, data used for community indicators must be suitable for assignment to geographic units. Administrative agency data, which are often the preferred source for local community indicators, must be obtained with the street addresses intact. The addresses can be geo-coded using the TIGER files (census files containing street addresses) and aggregated to the desired geographic boundaries—for example, block groups, census tracts, resident-defined neighborhoods, wards, catchments areas, school zones, and so on."

The various state agencies will need to be instructed by the Legislature to standardize procedures of geo-coding, since there is likely to be variability in ways records are kept or changed.

The Geo-Coding will enable reports for communities such as on the access of tobacco products by minors.

Figure 53:Attempts & Illegal Tobacco Sales to Minors by Top 20 Cities



Reporting Error and Biases

Error and bias issues must be addressed in this Wyoming effort, because problems are particularly troubling at the local community level. Local community indicators rely heavily on administrative agency data, and they are thus beset by the reporting bias and error in those data sources. Several actions will need to be undertaken to reduce problems of error and bias:

⇒ Efforts will need to be made to validate indicators based on administrative records against other data sources. Specially designed community surveys would be useful for establishing the validity of indicators derived from administrative agencies or other sources, as a mechanism of convergent validity. For example, legal records for delinquency acts are notorious for poor reliability.

⇒ Community indicators are often reported as rates in which the area's population is used as the denominator. Rates may be reported per 100, 1,000, or 100,000 persons. Unfortunately, population estimates are not universally available at the block-

group or census-tract level between censuses, so rates in non-census years will be less valid. While established methods of population estimation are used at state and county levels, their application to areas as small as block groups, census tracts, or neighborhoods has not been widespread.[278] The sources of data needed to perform these population estimates can generally be obtained for community areas through geo-coding. The housing unit method of population estimates, for instance, can use building and demolition permits, utility hookups and disconnections, or county assessor tax records to update housing unit counts post census. The component-cohort method relies on birth and death certificates. While estimating small-sized areas results in greater error, there is evidence that useful estimates are possible.

⇒ Small units of analysis haunt Wyoming. It will be necessary to use rolling averages for several years together in some cases, otherwise the percentages, ranks, or other comparisons will be too volatile.

Feedback and Recognition for Citizen and Community Efforts

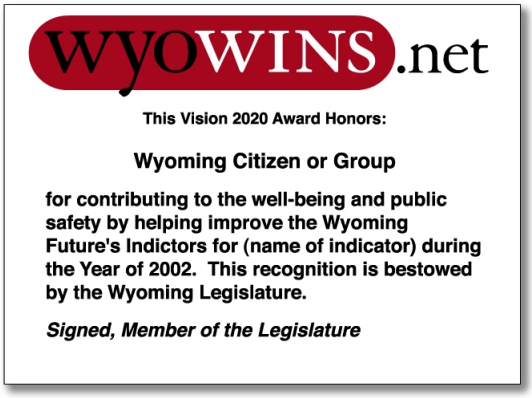
The data from "Monitoring Wyoming's Future" must be presented in a timely way so that citizens and local units of government may act to sustain positive activities, devise new strategies, and decrease harmful events. The presentation of state-level data will not be sufficient, based on the experience of other States such as Vermont. Several things will need to be in place as a result of this effort:

⇒ Data will need to be frequently reported for local units of government—meaning cities, counties, school districts, and even school feeder patterns.

⇒ We recommend that some community data (not necessarily school level data) be reported by school feeder pattern. Local schools are the smallest unit of public actions undertaken for common benefit. Thus, if assaults are up in a school feeder pattern, or adult substance abuse is, then the residents are far more likely to come together in a sort of Town Hall type function to take action in their own behalf. Just county or state level data for some things will tend to foster denial or blame ("It's those people over there.")

⇒ We further recommend that every member of the Legislature be provided indices of positive changes in his or her district (e.g., the number of low-weight births are down, the number of students of young people having no or little use of drugs is up) so that he or she can commend and recognize local citizens or organizations for their positive efforts, via special certificates and press-releases. Such recognition and attention improves community empowerment. An example certificate is shown below.

Figure 54: Example community recognition



Changing the Dialogue in Wyoming

In the course of the preparation of this report, one of the authors was involved in preparing recommendations for various federal agencies at national level, as a sort of consensus statement of desirable practices to prevent such problems as substance abuse.

Asking Everyone About Their Efforts

The panel of experts assembled for this task at Stanford University heard about a practice in Vermont, which is probably applicable for Wyoming—since both states share a strong streak of independent spirit. At Legislative hearings, every state - supported agency is asked to comment on what they have done to improve the type of health and safety indicators mentioned earlier in this section. Both the Executive and Legislative branches of the Vermont State government have agreed to ask two basic questions at virtually every hearing to foster a dynamic process of movement toward a better state environment of all citizens. The questions are framed in the box below, suitable for Wyoming:

Testimony Question 1:

What have you (agency or group) done to improve the Wyoming Future's Indicators this past year?

Testimony Question 2:

What will you (agency or group) do next year to improve the Wyoming Future's Indicators?

Making Wyoming Future Indicators Part of Doing Business with the State of Wyoming

Government cannot solve the problem of substance abuse and other multi-problems alone. That is an essential principle laid out at the onset of this study.

The authors of this study recommend that the Legislature make this principle clear with those who would do business with the State of Wyoming in a very straightforward way, which raises awareness and increases the dialogue with friends and neighbors all throughout our state. In most States, contractors may have to fill out environmental impact statements, pledge not to discriminate on the basis of age, handicapping condition, etc. All governments in this country have been formed to benefit the public safety, the health, welfare, and happiness of their citizens. It would not be unreasonable for the state to have two simple directives in contracts, as appendices, above a certain amount:

1. If you received funds for this contract in the past year, please explain below how your organization or entity helped improve Wyoming Future's Indicators during the last contract period.
2. For the period in which this contract will run, please explain how your entity will improve Wyoming's Future's Indicators during the contract period.

The **wyowins.net** website would maintain examples of what entities had done or proposed to do. In addition, a portion of the social marketing campaign for Wyoming would strongly promote individual and collective practices that could be undertaken to improve Wyoming Futures Indicators, and be tied to the Wyoming Community Toolbox. The Governor and Legislature might regularly honor businesses in Wyoming—small and large—who had undertaken noteworthy actions to improve these indicators.

Appointment of Citizens and State Employees for a Special Fellowship

Wyoming has immense reserves of talent. Unfortunately, our under-staffed environment means that many people work very hard on pressing matters, and never really have time to see the future of the state in a bigger way, to examine our own activities or resources so that they might be better used to improve the Future of the State.

This plan, itself, is unique in the United States. As far as we can tell, no state has actually undertaken such a comprehensive review of the single issue of substance abuse, despite the horrible toll being inflected on the Western democracies by this problem. This plan has happened, because the State actually set aside the resources (people, time, and money) for it—beyond the normal course of taking care of the State's everyday business. The study resembles the strategy of Commonwealth countries like New Zealand, Australia, and Canada that regularly appoint world-class experts to work with their citizens who are on a "secondment" (a special assignment) on a sustained basis (a year) to come up with powerful solutions to concerns of the governments. The Commonwealth countries have prodigious productivity compared to their size. Indeed, some of the best ideas and solutions for Wyoming have come from Commonwealth countries—precisely because they do not have the number of people, the dollars, or other resources that some other larger political entities might have.

A small state or country simply cannot "throw money" at a problem. A small state must think, do, and be far more creative and bold with its smaller number of human and financial resources. A small state or country must be smarter, and certainly not just copycat.

A small state cannot pretend that the events that happen in a big country or state will not affect them either. Our northern neighbor, Canada, gets a financial cold when the United States stock market sneezes, for example, The people of Cheyenne, Wyoming, have a hard time paying their electricity bill when the state

of California has rolling blackout—even though we are the "BTU Capital of the World."

We propose that Wyoming "think smarter" about its future and its most rarest of natural resources, its people. This idea has been set in motion in part by the data collection system being proposed herein. No state will have what we will have, and knowledge is power in the modern world. Knowledge can allow us to see the hazards and harms as well as bold opportunities—provided there are Wyoming people to see, think about, and use the information. Without an alert crew in the aircraft making the approach into Jackson Hole, the information from the instruments will be useless—as in a defining metaphor in the opening of this section.

How might Wyoming leaders and citizens think smarter in the long-term? We propose a possibility, where knowledge and real-world know-how might come together for the benefit of our future:

1. The Governor, based on nominations proposed by the Wyoming Legislature, would appoint Wyoming civil servants or citizens annually to serve as a Wyoming Citizen in Residence at the Wyoming Futures Project housed at the University of Wyoming for a period of one year, when such nominees would conduct collaborative projects and studies that further improve Wyoming Future Indicators.
2. The Governor, upon the advice of Cabinet, would appoint one or more distinguished individuals from any state or country to serve as Visiting Advisors, whose knowledge, skill or expertise might significantly enhance the capacity of Wyoming to achieve its vision of dramatic improvement of the Wyoming Indicators by the Year 2020.
3. The Department of Health should work with the University of Wyoming to develop appropriate screening criteria and standards of appoint for both citizen fellows and senior research fellows.

Do we have evidence that such activities might benefit Wyoming and not just be some sort of paid leave? Yes, we do. In February of 2000, The Governor's Advisory Board on Substance Abuse invited 10 major scientists to spend time together with our state's 2nd and 3rd tier civil servants. Out of that experience came the Reward and Reminder Campaign for reducing sales of tobacco to minors. Many states have spent far more money and time to solve that problem, and Wyoming set a national record by thinking, acting, and being smarter.

What kinds of projects could people assigned to the project conduct over a year's time? We outline a few examples:

⇒ Does a brief, cognitive behavioral intervention for depression delivered as a part of Wyoming Workforce Development reduce the symptoms of depression and increase measures of employability?

⇒ Evidence from the cognitive behavioral literature suggests that it might well, but no literature exists in the context of Workforce Development—despite the well documented fact that depression prevalence is very high among people who are seeking to re-enter or enter the workplace.[279] In theory, a brief, science-based cognitive behavioral approach to depression could save the state considerable funds and move a person toward self-sufficiency more quickly.[280]

⇒ Does a brief parenting intervention using a science-based program delivered by videotape reduce youth problem behavior in Wyoming rural communities?

⇒ Emerging research suggests that videotaped or Internet delivery of parenting practices using behavioral methods can improve the behavior of children and teens.[281] It is not known whether such interventions could be sustained by via Internet or mail using video training in the Wyoming context. If so, the positive benefit for Wyoming families would be very high and the cost low for the State.

⇒ Do phone calls and visits to Wyoming Clinicians Improve the Effectiveness of Therapists When Providing Feedback on Therapy Outcomes?

⇒ Increasingly there is evidence of emerging "best practice" to improve both health and mental health outcomes. Generally speaking, there is a serious question about the impact of standard professional development as related to improved treatment outcomes.[282] Some studies suggest that long training is required, which is difficult in the Wyoming context.[283] Historically, there is evidence that personal, on site visits where feedback on outcomes, coaching, and demonstration happen might improve the compliance of therapists or professional delivery agents.[284] This practice has not been tested in a rural context, and Wyoming's issue of accountability for funds spent on mental health and substance abuse treatment would be served if such strategy worked.

Issues to Be Further Studied

During the preparation of this report, we became aware of populations of people for which we have little or no information. These groups or situations represent groups with known elevated risk for substance abuse. During the next year, these populations need further study, for the development of strategies responsive to the public health and safety issues presented:

⇒ Detained Youth. Presently 19 counties are tracking admissions to detention centers and jails in Wyoming of juveniles. This has only been happening for 1 year, and needs to continue. Having said that, Wyoming needs to expand this assessment to include mental health and substance abuse treatment needs of these youth, since they categorically pose an elevated risk of multi-problems inclusive of antisocial behavior, substance abuse, suicide, and misuse

or abuse of substances. Better treatment and response to such youth may dramatically improve their outcomes and those of the children which they are more likely to have than non-incarcerated youth.

⇒ Homeless Youth Or Youth-On-Their-Own – There are approximately 100-200 young people who are homeless or on their own in Cheyenne, according to interviews with local providers. Historically, such young people have much higher risk for substance abuse, serious sexually transmitted diseases, and criminal activities. We have no estimate of the numbers of such young people in Wyoming, where they are located and the severity of their problems compared to other jurisdictions. During the next two years, the Department of Health, the Department of Education, the Department of Family Services, and others need to undertake: 1) a field trial of intervention services, and 2) a census of such youth, inclusive of their difficulties.

⇒ Youth in Alternative School Settings – Historically, there have not been any data collected on substance use and misuse among alternative education school students. In general, national data suggest that such youth have very high misuse and abuse rates.[285] We strongly recommend data be collected from such sites in Wyoming, which is just starting by the Substance Abuse Division and that open trials of interventions begin in such settings to expand our knowledge and the larger public health. Limited science presently exists for treatment services in such context, but does provide some insight for intervention.[286]

⇒ Transient Adults — Community providers and some community informants have argued during the course of this review that significant numbers of the users of scarce treatment resources are transient individuals, some of whom make a circuit during winter and summer to different locations. We have no objective data on such individuals, their numbers, or information about possible effective treatment strategies to report at this juncture. We urge that some research project be undertaken to assess this issue.

⇒ Medicaid Services and Prescriptions — Significant substance abuse, which is sometimes intentional and sometimes the result of medication interactions, happens in the older population receiving Medicaid. Late in the preparation of this report, the authors learned that Wyoming is one of the few states to have purchased the decision software that would allow it to analyze the patterns of prescriptions to look for abuse of prescriptions or for interactions that could be fatal or have serious consequences. Medicaid is interesting, because substance abuse and mental health services increase with the age of the patient according an examination of the records of 10 states.[287] Payments for mental health and substance abuse may account for as much as 28% of the expenditures, based on the 10-state study.

⇒ The authors recommend that this system be examined in greater detail as mechanisms of providing higher quality services, a unified system of care, and improve the public health and safety of Wyoming during the next two years. There was not sufficient time to explore this technology during the study. This new system, if fully utilized, could enable the state to do many things:

⇒ Estimate the expenditures attributable to substance abuse, using standardized decision trees. A national study estimates that $8,000,000,000 is the direct result of substance abuse complications for Medicaid sponsored services.[288]

⇒ Estimate the savings from better substance abuse treatment, as was done in the State of Washington, which appeared to be around $5,000,000 for the chronically mentally ill who were also abusing substances.[289]

⇒ Review of drug sensitivities and avoidance of possible fatal consequences (Adverse Drug Reactions), which have been noted for some time but had little possibility of being dealt with until the types of computer programs were developed that Wyoming now has.[290] For example many prescriptions involve the use of drugs for older people that severally affect liver function sensitivity to alcohol or other drugs. Medicare claims could spot high risk patient profiles.[291] These Adverse Drug Reactions (ADRs) are not a trivial problem medically, socially or legally. For example, Canada has studied such adverse drug reactions involving selective serotonin reuptake inhibitors (SSRIs are the single most common prescription cost for most health care plans presently). ADR reports in the SSRI database for Canada, there were 1011 cases, with severe ADRs (n = 295) involving all types of SSRIs, drug-drug interactions (n = 312), deaths (n = 87), or intentional overdoses (n = 79).[292] (Please note that the adverse reactions to SSRIs are small by comparison to other medications).

⇒ A way to reduce prescription fraud, as has been done recently in Florida, which also purchased the system.[293]

⇒ Help reduce the adverse impact of rapid cycling bi-polar disorder.[294]

Summary for Monitoring Wyoming's Future

Wyoming has always been a future oriented society. We were the first state to embrace the right of women to vote. We were the first to have a woman Governor. This section of the plan as requested by the State Legislature will enable Wyoming to use sound data collection and public policy to help us chart our course into the future, rather than being the simply the passengers onboard.

Prudent business people follow trends and project into the future. Prudent

business people want to maximize future return. A state is no different in managing its most precious resources, its people. What will be different about the Monitoring the Future efforts in Wyoming is that we will not be looking at the past to find blame. We will look at our past to help us chart a future. The way reports, dialogue, and even the statistical analyses will be set up will be future focused, not past focused: What do we need to sustain? What do we need to contain? What do we need leave behind? What do we need to do differently?

This section of the comprehensive plan commissioned by the State Legislature will call for the following enabling actions:

1. Passage of the Vision 2020 Act of 2001.
2. Adoption of the practice of asking witnesses from agencies to report on how they have improved Wyoming's Future Indicators.
3. Participation by each legislator in honoring local constituents whose actions have improved Wyoming's Future Indicators.